ADDITIONAL

PIONEER

Service Manual

AM/FM STEREO RECEIVER

SX-590 HG, HGW4

NOTES:

- Although the basic circuit of model SX-590/HG, HGW4 is the same as the SX-580/KU, there are a few minor changes in design.
- For detailed instructions on adjustments, circuit descriptions, exploded views, etc., please refer to the SX-580/KU service manual (ART-288).

Type	Voltage	Remarks
HGW4	200V and 240V (Switchable)	Europe or Oceania model
HG	220V and 240V (Switchable)	United Kingdom model

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<ART-295-0>
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CONTRAST OF MISCELLANEOUS PARTS

P.C. BOARD ASSEMBLIES

Symbol	Description	Part No.		
		SX-580/KU	SX-590/HGW4	SX-590/HG
	Tuner and AF assembly	GWM-113	GWM-116	GWM-116
	Headphone assembly	GWX-179	GWX-179	GWX-179
	De- emphasis assembly	GWX-180	.....	.....
	Front end	GWB-101	GWB-102	GWB-102
	Terminal assembly	GWX-181	GWX-184	GWX-184
	Fuse assembly	GWX-178	GWX-185	GWX-185
	LED assembly	GWX-177	GWX-177	GWX-177

SWITCHES

Symbol	Description	Part No.		
		SX-580/KU	SX-590/HGW4	SX-590/HG
S8	Push switch (POWER)	ASG-503	ASG-504	ASG-504
S9	Plug in selector	.....	AKX-057	AKX-057

CAPACITORS

Symbol	Description	Part No.		
		SX-580/KU	SX-590/HGW4	SX-590/HG
C1	Ceramic 0.01/250V	ACG-001	ACG-001	ACG-001
C2	Ceramic 0.01/125V	ACG-003	.....	.....

FUSES

Symbol	Description	Part No.		
		SX-580/KU	SX-590/HGW4	SX-590/HG
FU1	Fuse 3A	AEK-101	.....	.....
	Fuse 1.6A	.....	AEK-405	AEK-405
FU2	Fuse 1.5A	AEK-104	.....	.....
	Fuse 1.6A	.....	AEK-405	AEK-405
FU3	Fuse 4A	AEK-100	AEK-400	AEK-400
FU4	Fuse 4A	AEK-100	AEK-400	AEK-400
FU5	Fuse 1A	.....	AEK-402	AEK-402
FU6	Fuse 1A	.....	AEK-402	AEK-402

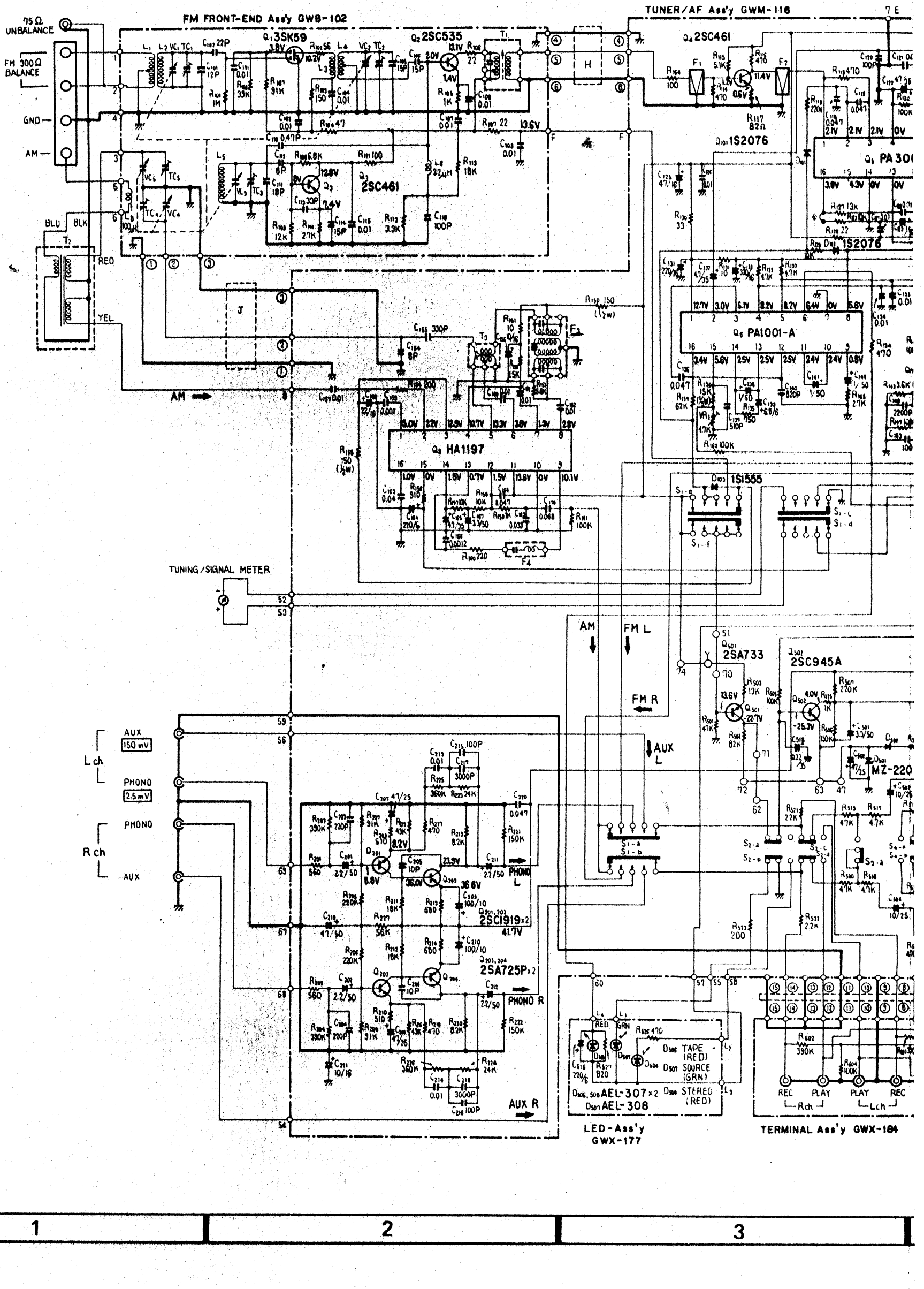
OTHERS

Symbol	Description	Part No.		
		SX-580/KU	SX-590/HGW4	SX-590/HG
T1	Power transformer	ATT-510	ATT-523	ATT-523
	AC socket (AC OUTLET)	AKP-004	.....	.....
	Recessed plug	.....	AKP-008	AKP-008
	Fuse holder 1P	.....	K91-008	K91-008
	Coaxial connector	.....	AKP-016	AKP-016
	AC power cord	ADG-022	.....	.....
	Front panel assembly	ANB-595	ANB-599	ANB-599
	Dial panel	AAG-158	AAG-160	AAG-160
	Wooden cover assembly	AMM-071	.....	.....
	Top plate	.....	ANE-202	ANE-202
	Side board (L)	.....	AMS-029	AMS-031
	Side board (R)	.....	AMS-030	AMS-032
	Cover (for C1)	AEC-294	AEC-099	AEC-099
	Cover (for C2)	AEC-279	.....	.....

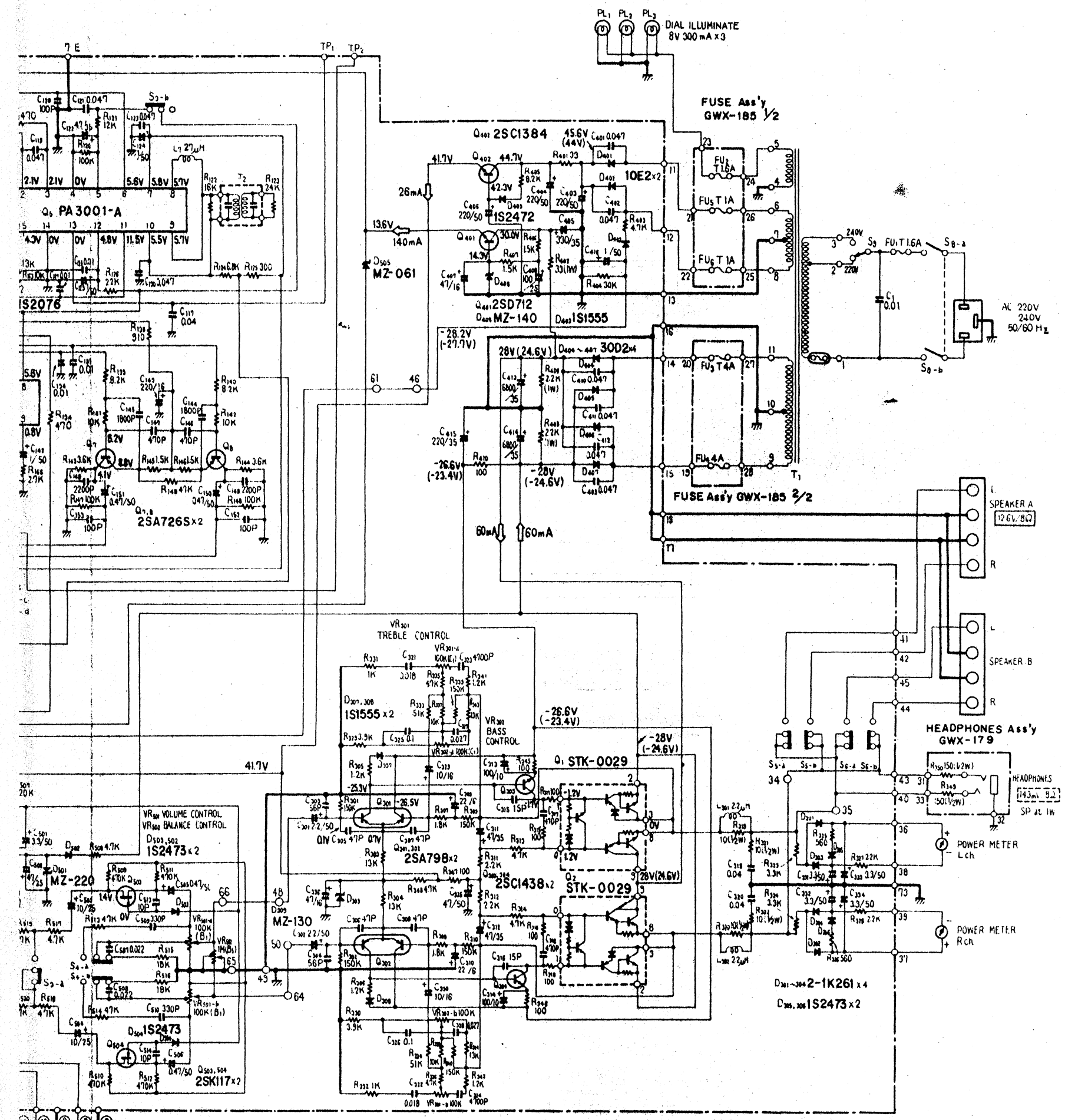
PACKING AND FURNISHED PARTS

Symbol	Description	Part No.		
		SX-580/KU	SX-590/HGW4	SX-590/HG
	Operating instructions (ENGLISH)	ARB-267	ARB-275	ARB-275
	Operating instructions (GERMAN/FRENCH)	.....	ARD-121	.....
	Packing case	AHD-549	AHD-555	AHD-555
	Vinyl pouch (for AC power cord)	AHG-023	.....	.....

SCHEMATIC DIAGRAM



NOTE:
The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.



SWITCHES:

S_1: FUNCTION
1. AM
2. FM
3. PHONO
4. AUX

S_2: TAPE MONITOR
OFF – ON

S_3: FM MUTE / MODO
ON/STEREO – OFF/MONO

S_4: LOUDNESS
OFF – ON

S_5: SPEAKER A
OFF – ON

S_6: SPEAKER B
OFF – ON

S_8: POWER
OFF – ON

S_9: LINE VOLTAGE SELECTOR
220V – 240V

RESISTORS:
IN OHM 1/4W ±5% TOLERANCE UNLESS OTHERWISE NOTED K: kΩ M: MΩ

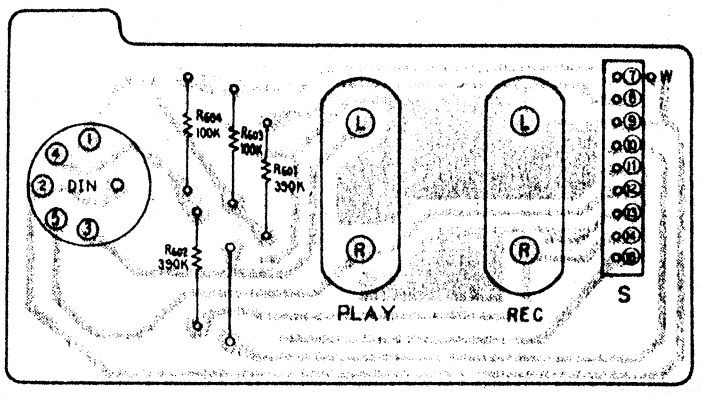
CAPACITORS:
IN μF UNLESS OTHERWISE NOTED P: pF

[V] : SIGNAL VOLTAGE AT 20W + 20W 8Ω OUTPUT (1kHz)
V : DC VOLTAGE AT NO INPUT SIGNAL
⇦ mA : DC CURRENT AT NO INPUT SIGNAL
(V) : DC VOLTAGE AT 20W OUTPUT

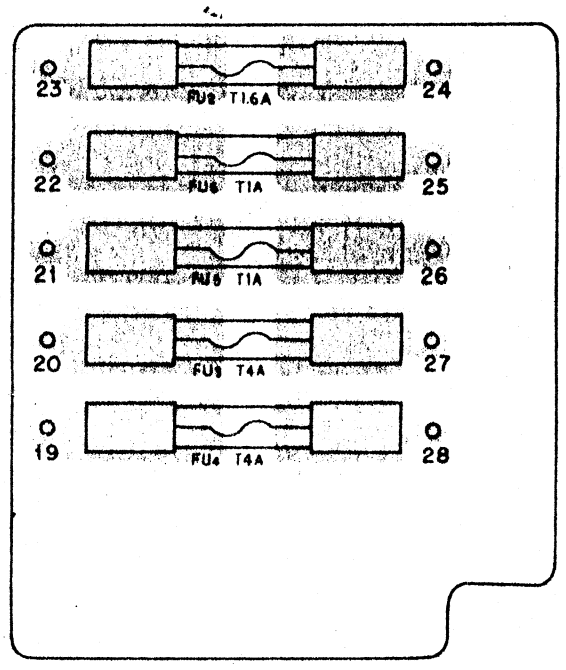
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

P.C. BOARD PATTERNS

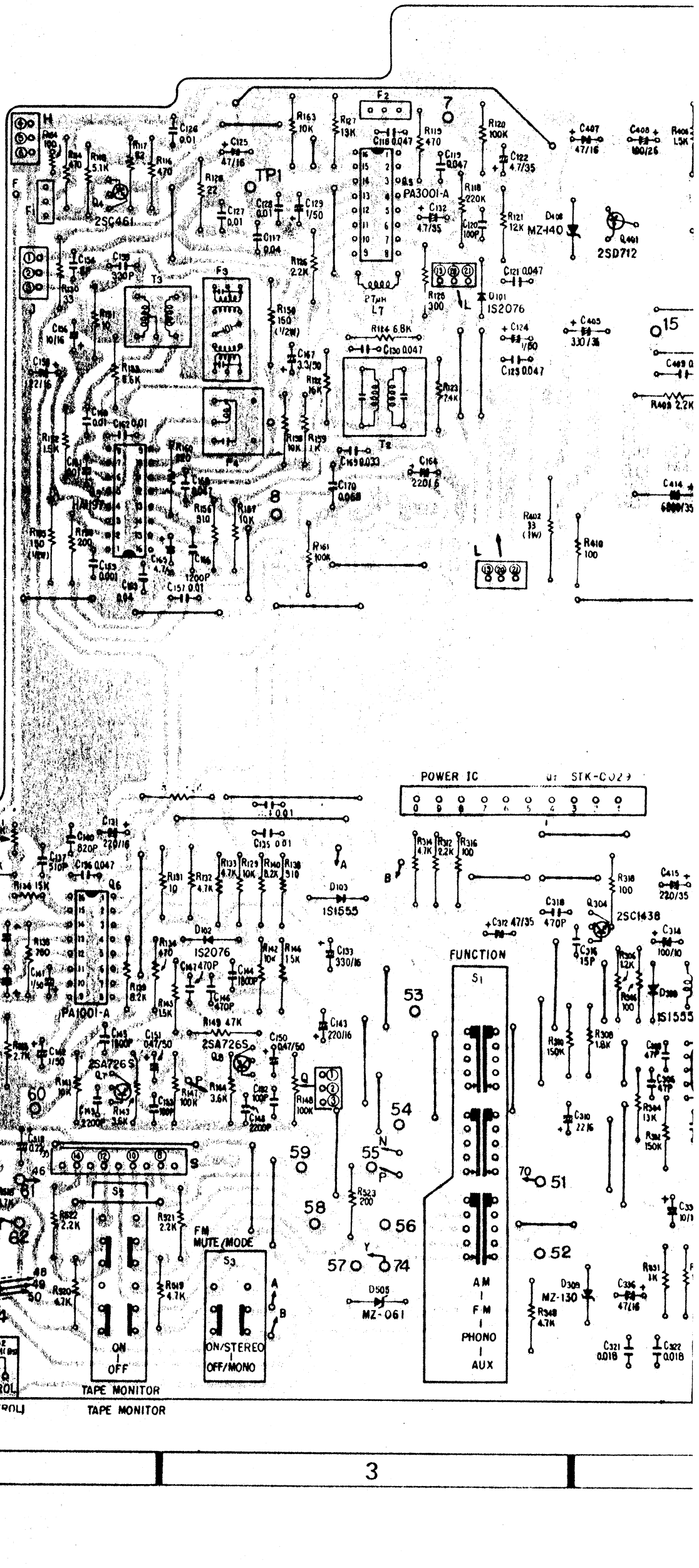
TERMINAL ASSEMBLY (GWX-184)



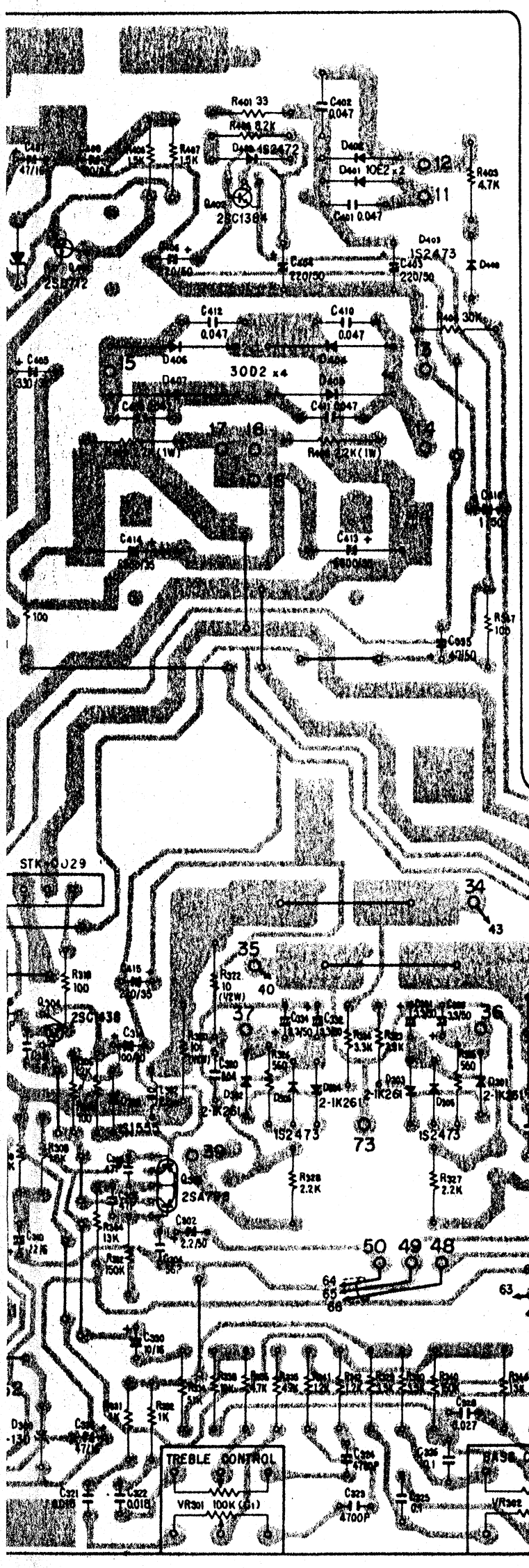
FUSE ASSEMBLY (GWX-185)



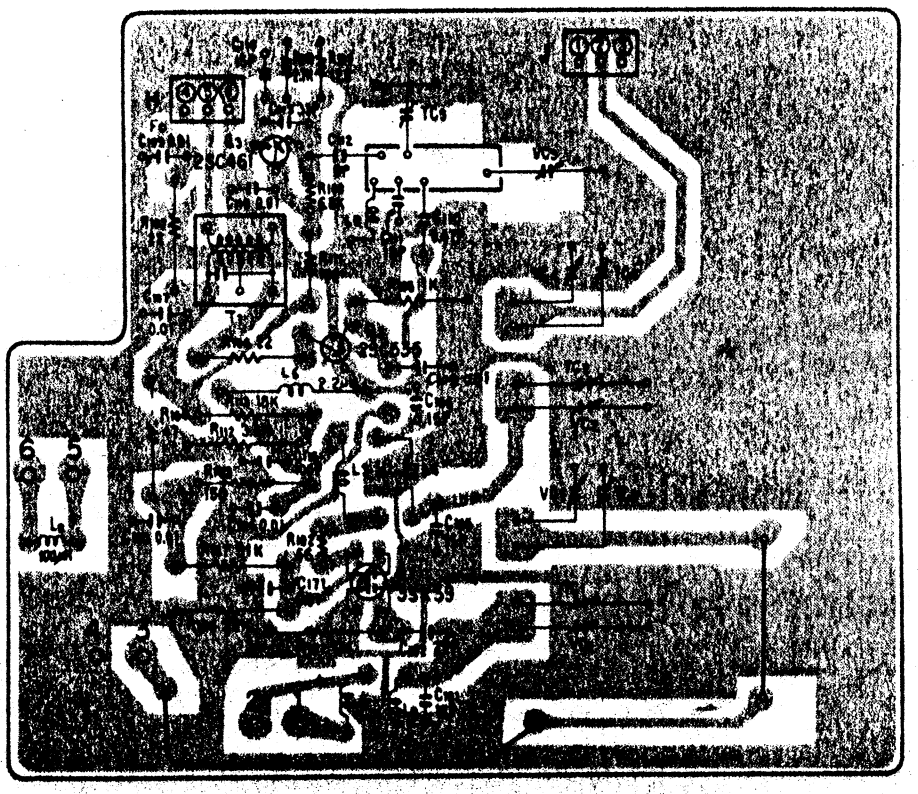
TUNER AND AF ASSEMBLY (



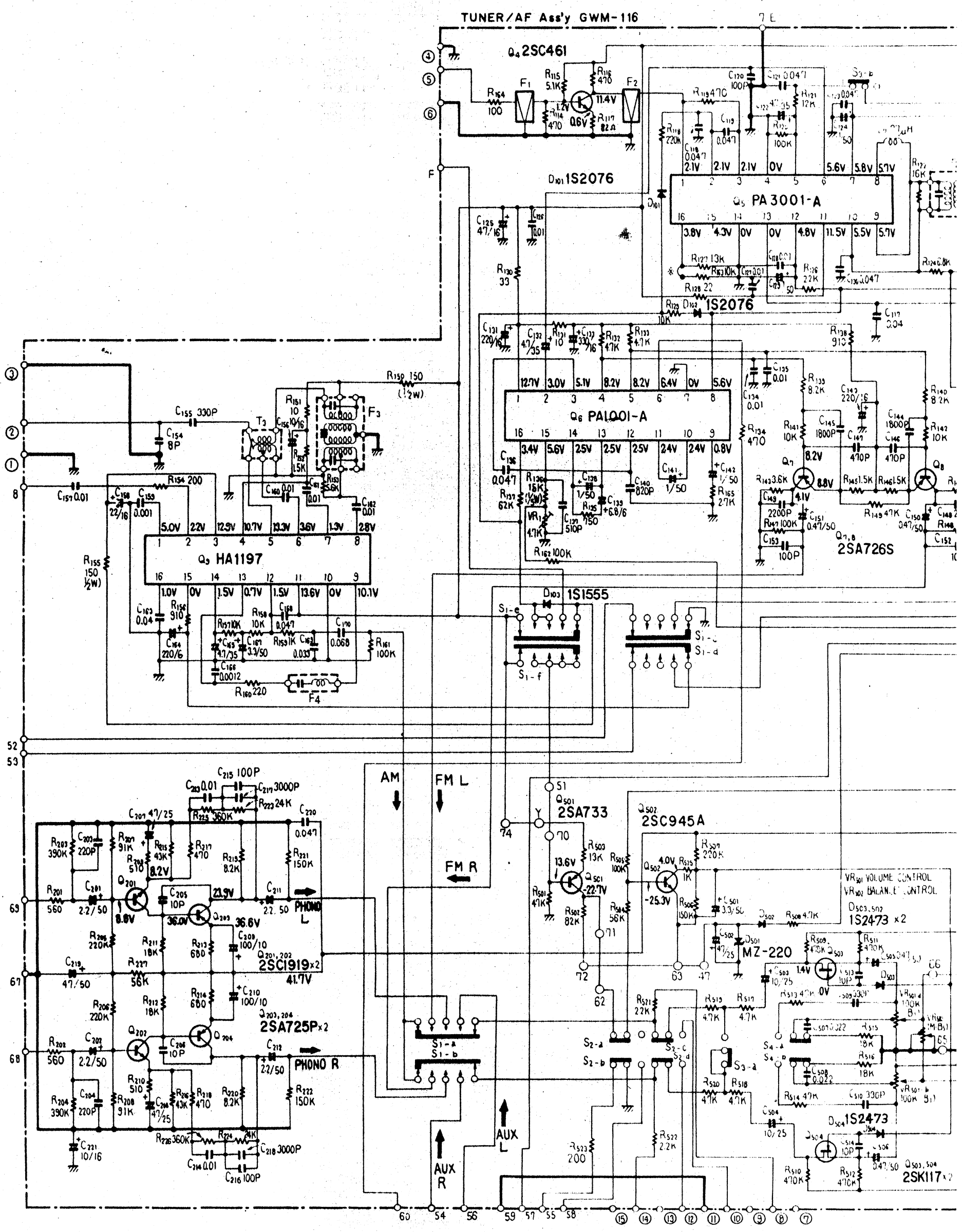
ASSEMBLY (GWM-116)

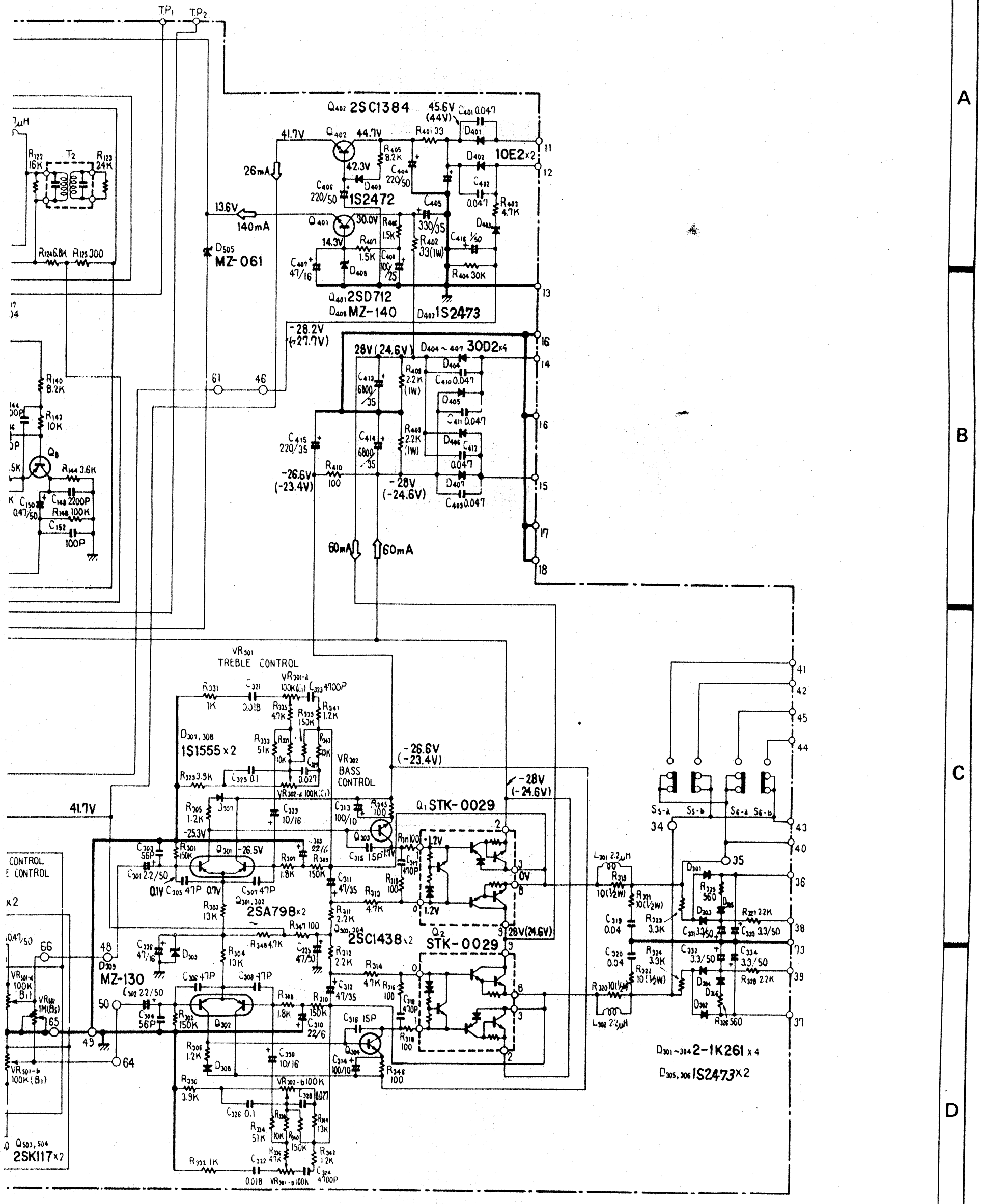


FRONT-END ASSEMBLY (GWB-102)

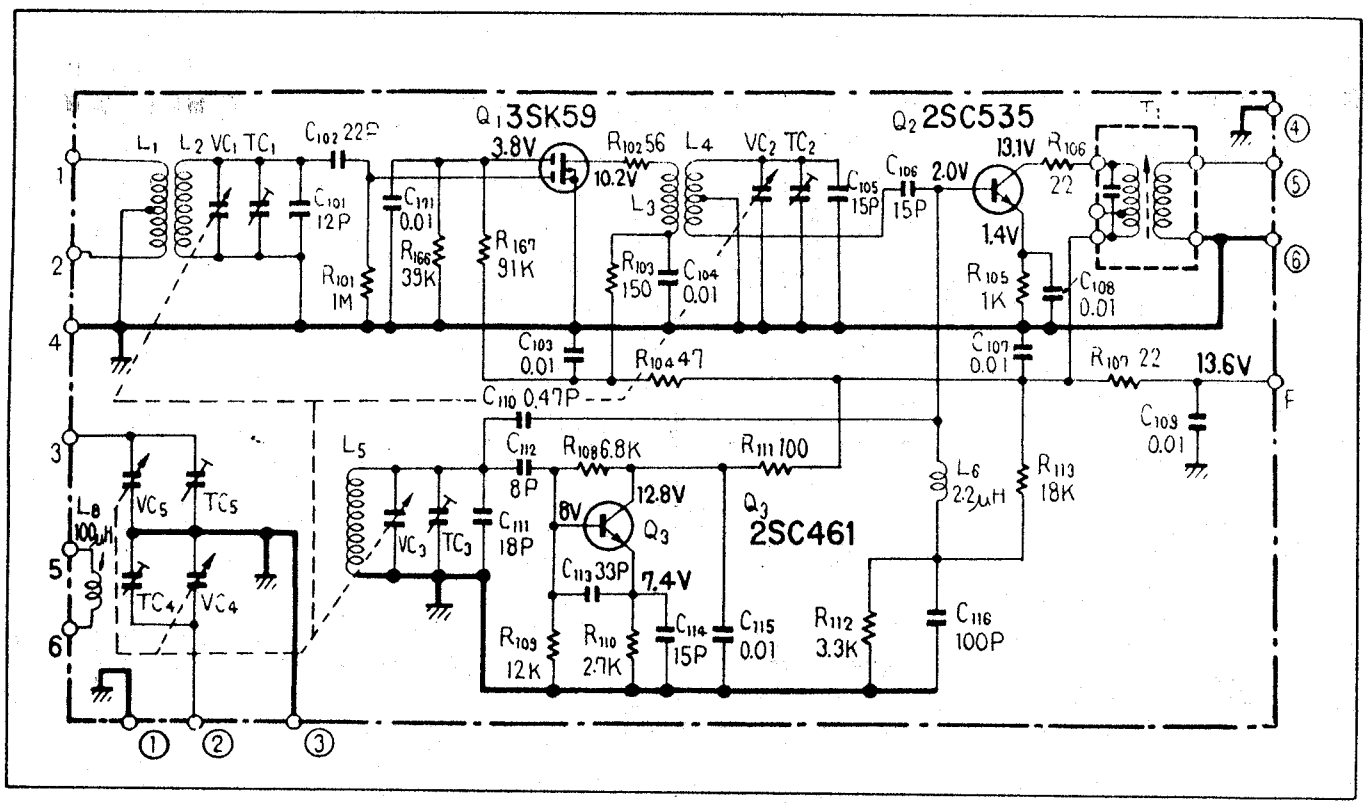


TUNER AND AF ASSEMBLY (GWM-116)




4
5
6
A
B
C
D
TP1
TP2
Q402 2SC1384
45.6V (44V)
C401 0.047
D401
41.7V
Q402
44.7V
R401 33
R405 8.2K
42.3V
C404 220/50
D403
D402 10E2×2
C406 220/50
1S2472
C402 0.047
R403 4.7K
26mA
13.6V
140mA
Q401
30.0V
R406 1.5K
C405 330/35
D404
14.3V
R407 1.5K
C408 100/25
C416 1/50
R402 33(1W)
C407 47/16
D408
R404 30K
D505 MZ-061
Q401 2SD712
D408 MZ-140
D403 1S2473
-28.2V (-27.7V)
28V (24.6V)
D404 ~ 407 30D2×4
C413 6800/35
R408 2.2K (1W)
C410 0.047
D405
C411 0.047
C414 6800/35
R409 2.2K (1W)
D406
C412 0.047
C415 220/35
R410 100
-26.6V (-23.4V)
-28V (-24.6V)
D407
C409 0.047
60mA
60mA
61
46
R140 8.2K
R142 10K
Q8
R144 3.6K
C148 2200P
R149 100K
C150 0.47/50
C152 100P
R124 6.8K
R125 300
T2
R122 16K
R123 24K
VR301 TREBLE CONTROL
VR301-a 100K(Ci)
R331 1K
C321 0.018
C323 4700P
R335 4.7K
R339 150K
R341 1.2K
D307, 308 1S1555×2
R333 51K
R337 10K
R343 33K
C327 0.027
VR302-a 100K(Ci)
VR302 BASS CONTROL
R323 3.9K
C325 0.1
R305 1.2K
D301
C329 10/16
C313 100/10
R345 100
Q1 STK-0029
-25.3V
Q303
C315 15P
R311 100
-1.2V
C317 470P
C303 56P
R301 150K
Q301 -26.5V
R307 1.8K
C305 47P
0.1V
C307 47P
R303 13K
Q301, 302 2SA798×2
R347 100
R348 4.7K
C311 47/35
R313 4.7K
R312 2.2K
Q302, 304 2SC1438×2
Q2 STK-0029
R314 4.7K
C312 47/35
R316 100
C318 470P
C336 47/16
D303
R304 13K
C335 47/50
C306 47P
C308 47P
C302 2.2/50
C304 56P
R302 150K
Q302
R308 1.8K
R310 150K
C310 22/6
C316 15P
Q304
C314 100/10
R346 100
R306 1.2K
D308
C330 10/16
R330 3.9K
VR302-b 100K
C328 0.027
C326 0.1
R334 51K
R338 10K
R340
R344 13K
R336 150K
R342 1.2K
R332 1K
C322 0.018
VR301-b 100K
C324 4700P
D309 MZ-130
VR501-a 100K (B1)
VR502 1M(B3)
VR501-b 100K (B1)
Q503, 504 2SK117×2
CONTROL
CONTROL
×2
0.47/50
66
65
64
48
50
49
41.7V
-26.6V (-23.4V)
-28V (-24.6V)
0V
28V (24.6V)
1.2V
-1.2V
L301 2.2μH
L302 2.2μH
R319 10(1/2W)
R321 10(1/2W)
R320 10(1/2W)
R322 10(1/2W)
C319 0.04
C320 0.04
R323 3.3K
R324 3.3K
D301
R325 560
D303
D305
R327 2.2K
C331 3.3/50
C333 3.3/50
C332 3.3/50
C334 3.3/50
D304
D306
D302
R328 2.2K
R326 560
S5-a
S5-b
S6-a
S6-b
34
35
36
38
39
37
43
40
44
45
42
41
D301~304 2-1K261×4
D305, 306 1S2473×2

FRONT END ASSEMBLY (GWB-102)



Parts List

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

SEMICONDUCTORS

Part No.	Symbol & Description
3SK59-Y or GR	Q1
2SC535-A or B	Q2
2SC461-B or C	Q3

TRANSFORMER AND COILS

Part No.	Symbol & Description	
ATE-039	T1	FM IF transformer
T24-028	L6	RF choke coil 2.2μH
T24-030	L8	RF choke coil

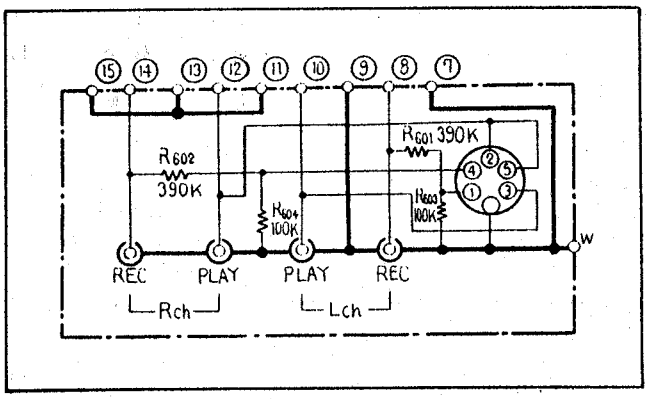
RESISTORS

Part No.	Symbol & Description
RD¼PS □□□ J	R101, R103–R107, R113, R166, R167
RD¼VS □□□ J	R111, R102, R108–R110

CAPACITORS

Part No.	Symbol & Description
CCDUJ 120K 50	C101
CCDSL 220K 50	C102
CKDYF 103Z 50	C103, C104, C107–C109, C115, C171
CCDUJ 150K 50	C105
CCDSL 150K 50	C106
CGB R47K 500	C110
CCDPH 180K 50	C111
CCDLH 080F 50	C112
CCDCH 330K 50	C113
CCDCH 150K 50	C114
CCDSL 101K 50	C116
ACK-012	VC Tuning capacitor
ACM-006	TC3 Ceramic trimmer

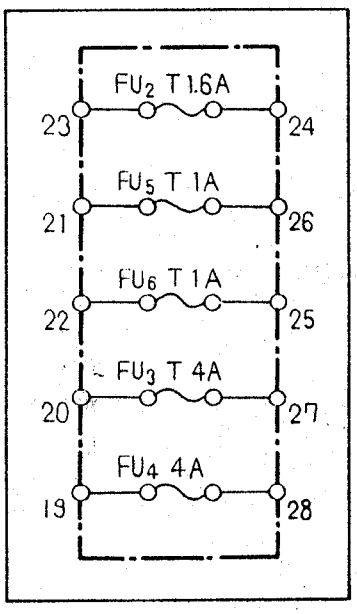
TERMINAL ASSEMBLY (GWX-184)



Parts List

Part No.	Symbol & Description
AKB-045	Terminal (TAPE)
AKP-011	DIN connector
RD¼PS 394J	R601, R602
RD¼PS 104J	R603, R604

FUSE ASSEMBLY (GWX-185)

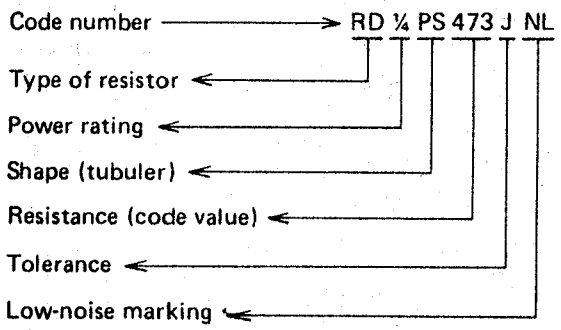


Parts List

Part No.	Symbol & Description
AKR-010	Fuse clip

RESISTANCE VALUE CODES

Code numbers of resistors used in Pioneer equipment are expressed in the following way:—



Furthermore, in the list of parts found in the Service Manual, the resistance (code value) part of the above code number is expressed as □□□ or □□□□.

Resistors included in the Service Manual list of parts

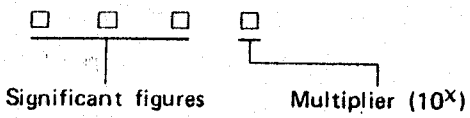
Ex. RD ¼ PS □□□ JNL

When ordering resistor components, first ascertain the actual resistance value from the circuit diagram, and then convert it into code no. form as shown in the following examples.

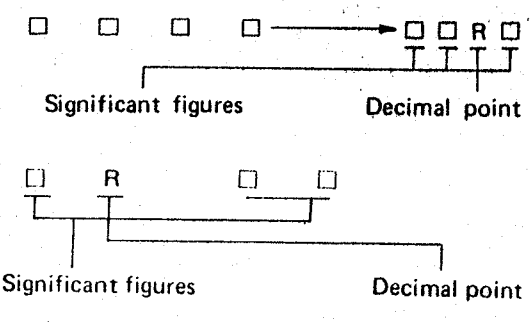
For further details on code numbers, refer to "Tuning Fork" VOL. 1.

Ex. 1 For □□□□ Codes

* General resistors



* Resistors with fractional values

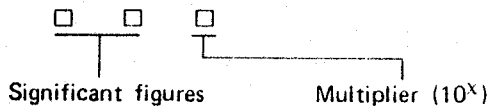


Ex. 1

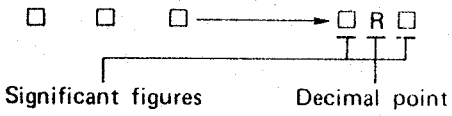
Nominal resistance (Ω)	Significant figure (three figures)	Multiplier (10^X)	Resistance value code
5.1	510	.....	5R10
5.62	562	.....	5R62
10	100	.....	10R0
22.5	225	.....	22R5
110	110	x10^0	1100
1k (1000)	100	x10^1	1001
1.56k (1560)	156	x10^1	1561
10k (10000)	100	x10^2	1002
33.6k (33600)	336	x10^2	3362
112k (112000)	112	x10^3	1123
1M (1000000)	100	x10^4	1004
1.56M (1560000)	156	x10^4	1564

Ex. 2 For □□□ Codes

* General resistors



* Resistors with fractional values



Ex. 2

Nominal resistance (Ω)	Significant figure (two figures)	Multiplier (10^X)	Resistance value code
0.5	05	.....	0R5
1.5	15	.....	1R5
1	01	x10^0	010
22	22	x10^0	220
330	33	x10^1	331
1k (1000)	10	x10^2	102
5.6k (5600)	56	x10^3	562
68k (68000)	68	x10^3	683
820k (820000)	82	x10^4	824
1M (1000000)	10	x10^5	105
2.2M (2200000)	22	x10^5	225

Parts List of Tuner and AF assembly (GWM-116)

SWITCHES

Part No.	Symbol & Description	
ASE-107	S1	Slide rotary (FUNCTION)
ASG-137	S2, S3	Dual push (TAPE MON., MODE/FM MUTE)
ASG-138	S4	Push (LOUDNESS)
ASG-139	S5, S6	Dual push (SPEAKERS)

TRANSFORMERS AND COILS

Part No.	Symbol & Description	
ATE-040	T2	FM transformer
ATB-013	T3	AM OSC coil
ATF-013	F1, F2	FM ceramic filter
ATF-034	F3	AM ceramic filter
ATF-038	F4	455kHz filter
ATH-022	L7	RF choke coil 27μH

CAPACITORS

Part No.	Symbol & Description		
CKDYF 403Z 50	C117, C163		
CKDYF 473Z 50	C118, C119, C121, C123, C130, C168		
CCDSL 101K 50	C120, C152, C153		
CEA 4R7P 16	C122, C132, C165		
CEA 010P 50	C124, C129, C142		
CEA 470P 16	C125		
CKDYF 103Z 50	C126–C128, C157, C160–C162		
CEA 221P 16	C131, C143		
CEA 331P 16	C133		
CKDYA 103J 50 (CQMA 103J 50)	C134, C135		
CQMA 473K 50	C136		
CQSH 511J 50	C137		
CEANL 010M 50	C138, C141		
CSZA 6R8M 6	C139		
CKDYB 821K 50	C140		
CKDYB 182K 50	C144, C145		
CKDYB 471K 50	C146, C147		
CKDYB 222K 50	C148, C149		
CEA R47P 50	C150, C151		
CCDXL 080F 50	C154		
CQSH 331J 50	C155		
CEA 100P 16	C156		
CEA 220P 16	C158		
CKDYB 102K 50	C159		
CKDYB 122K 50	C166		
CEA 3R3P 50	C167		
CQMA 333K 50	C169		
CQMA 683K 50	C170		
CEA 221P 6	C164		
CEANL 2R2P 50	C201, C202, C211, C212		
CCDSL 221K 50	C203, C204		
CCDSL 100F 50	C205, C206		
CEANL 470P 25	C207, C208		
CEA 101P 10	C209, C210		
CKDYA 103J 50 (CQMA 103J 50)	C213, C214		
CCDSL 101K 50	C215, C216		
CKDYA 302J 50 (CQMA 302J 50)	C217, C218		
CEA 470P 50	C219		
CKDYF 473Z 50	C220		
CEANL 2R2P 50	C301, C302		
CCDSL 560K 50	C303, C304		
CCDSL 470K 50	C305–C308		
CEA 220P 6	C309, C310		
CEA 470P 35	C311, C312		
CEA 101P 10	C313, C314		
CCDSL 150K 50	C315, C316		
CCDSL 471K 50	C317, C318		
CCDYF 403Z 50	C319, C320		
CQMA 183J 50	C321, C322		
CQMA 472J 50	C323, C324		
CQMA 104J 50	C325, C326		
CQMA 273J 50	C327, C328		
CEANL 100P 16	C329, C330		
CEA 3R3P 50	C331–C334		
CEA 470P 50	C335		
CEA 470P 16	C336		
ACG-009	C401, C402, C409–412	Ceramic	0.047/150V
CEA 221P 50	C403, C404, C406		
CEA 470P 16	C407		
CEA 101P 25	C408		
ACH-201	C413, C414	Electrolytic	6800/35V
CEA 221P 35	C415		
CEA 331P 35	C405		
CEA 0R1P 50	C416		
CEA 3R3P 50	C501		
CEA 470P 25	C502		
CEANL 100P 25	C503, C504		
CEANL R47M 50	C505, C506		
CQMA 223J 50	C507, C508		
CCDSL 331K 50	C509, C510		
CCDSL 100K 50	C513, C514		
CSZA R22M 35	C518		

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description
RD¼PS □□□ J	R114–R135, R137–R149, R151–R154, R156–R163
RD¼PS □□□ J	R201–R204, R209–R227
RD¼PS □□□ J	R301–R314, R323–R348
RD¼PS □□□ J	R403–R407
RF¼PS □□□ J	R401, R410, R315–R318, R347

Part No.	Symbol & Description
RD¼PS □□□ J	R501 – R523, R525
RF½PS □□□ J	R321, R322
RD¼PS □□□JNL	R205 – R208
RN⅛SQ □□□□ F	R136
RD¼VS □□□ J	R164
RD½PS □□□ J	R150, R155, R319, R320
ACN-034	R402
RS1P □□□ J	R408, R409
ACV-186	VR301, VR302 Variable 100kΩ(BASS, TREBLE)
C92-051	VR1 Semi-fixed 4.7kΩ
ACV-161	VR501 Variable 100kΩ (VOLUME)
ACT-019	VR502 Variable 1MΩ (BALANCE)

SEMICONDUCTORS

Part No.	Symbol & Description
2SC461-B or C	Q4
PA3001-A	Q5
PA1001-A	Q6
2SA726S-G or F (2SA750-E or F)	Q7, Q8
HA1197	Q9
2SC1919-G or F (2SC1400-E)	Q201, Q202
2SA725P-F or G	Q203, Q204
2SA798-F or G	Q301, Q302
2SC1438-V or B	Q303, Q304
2SD712-C or D (2SD313-D or E)	Q401
2SC1384-Q or R	Q402
2SA733-Q or R	Q501
2SC945A-Q or R	Q502
2SK117-GR or Y (2SK34-C or D)	Q503, Q504
1S2076 (1S2473) (1S1555)	D101, D102
1S1555 (1S2473)	D103
2-1K 261	D301 – D304
1S1555 (1S2473)	D305 – D308
MZ-130 (WZ-130)	D309
10E2 (SIB01-02)	D401, D402
1S1555 (1S2473)	D403
30D2 (GP-25D)	D404 – D407
MZ-140 (WZ-140)	D408
1S2472 (1S1554)	D409
MZ-220 (WZ-220)	D501
1S1555 (1S2473)	D502 – D504
MZ-061 (WZ-061)	D505

OTHERS

Part No.	Symbol & Description
AKH-014	IC socket
ANH-203	Heat sink
ABN-047	Union nut
ABN-024	Washer faced nut

List of Changed Parts for Factory Modification

Symbol	Part No.	Description